This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-28 (cancelled)

Claim 29 (new): Device for the optical excitation of laser-active crystals, with a diode laser (1) which generates pump radiation (2), the laser-active crystal being arranged in a solid-state laser or solid-state laser amplifier and the laser-active crystal having an axis (C) with strong absorption and an axis (A) with weak absorption, comprising: an optical element (4) is arranged downstream of the diode laser (1) in order to achieve spatial shaping of the pump radiation from the diode laser (1) and in that the pump radiation (2) from the diode laser (1) is substantially polarised linearly in a privileged polarisation direction, and in that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14) when it is incident in the laser-active crystal (14).

Claim 30 (new): Device according to claim 29, wherein the laser-active crystal (14) has at least a first and a second end face (14a, 14b) which have a polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at the first or second end faces (14a, 14b) are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 31 (new): Device according to claim 29, wherein the solid-state laser or solid-state laser amplifier comprises a laser resonator (27) with a multiplicity of mirrors (28, 29, 30), the surfaces of which are provided with polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at these surfaces are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 32 (new): Device according to claim 29, wherein the laser-active crystal (14) consists of Nd:$YV0_4$, Nd:$GdVO_4$, Nd:LSB, Nd:$YA10_3$, Nd:YLF or Nd:BEL.

Claim 33 (new): Device according to claim 29, wherein the laser-active crystal (14) consists of Nd:$YV0_4$ with neodymium doping of more than 0.5% (at.).

Claim 34 (new): Device according to claim 29, wherein the optical element (4) is configured in the form of micro-optics.

Claim 35 (new): Device according to claim 29, wherein the optical element (4) is designed in the form of a polarisation-preserving waveguide, in order to achieve spatial shaping of the pump radiation (2) from the diode laser (1), the polarisation-dependent waveguide consisting, for example, of a glass rod or an optical fibre.

Claim 36 (new): Device according to claim 29, further comprising: an input means (25), which injects the pump

radiation (2) from the diode laser (1) into the laser-active crystal (14) with polarisation-dependent reflection and transmission, is arranged in the laser resonator (27).

Claim 37 (new): Device according to claim 29, further comprising: a plurality of diode lasers (1) which project the light of the pump radiation (2) leaving them onto the laser-active crystal (14) are provided, and in that at least one resonator mirror (30, 31 or 32) is provided in order to project the pump radiation (2) onto the laser-active crystal (14).

Claim 38 (new): Device according to claim 29, wherein the second end face (14b) of the laser-active crystal (14) is assigned a reflector (52), which reflects the unabsorbed pump radiation (50) that was injected through the first end face (14a), and injects it into the second end face (14b) as reflected pump radiation (54).

Claim 39 (new): Device according to claim 38, wherein the laser-active crystal (14) has doping and a length which are selected so that less than 70% of the pump radiation (2) can be absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 40 (new): Device according to claim 39, wherein approximately 50 to 60% of the pump radiation (2) can be absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 41 (new): Device according to claim 29, further comprising: a laser oscillator (70) which generates an output beam (71) is provided, and in that the output beam (71) can be injected into the laser-active crystal (14) at least via the first or second end face (14a or 14b), passes through the laser-active crystal (14) and generates a beam (72) with higher output power.

Claim 42 (new): Device according to claim 41, further comprising: an input mirror (74) for the output beam (71), which injects the output beam (71) into the laser-active crystal (14), is provided between imaging optics (12) for the pump beam (2) and the first end face (14a).

Claim 43 (new): Method for the optical excitation of laser-active crystals with a diode laser (1), the laser-active crystal (14) being arranged in a solid-state laser or solid-state laser amplifier, comprising:
- spatially shaping pump radiation (2) generated by the diode laser (1) with an optical element (4), the shaped pump radiation (2) having a polarisation direction, and
- projection onto a laser-active crystal (14), which has an axis (C) with strong absorption and an axis (A) with weak absorption, so that the polarisation direction of the pump radiation (2) is oriented parallel to the weak-absorption axis (A) of the laser-active crystal (14).

Claim 44 (new): Method according to claim 43, wherein the laser-active crystal (14) and the polarisation direction of the pump radiation (2) are aligned relative to each other so that the weak-absorption axis (A) of the

laser-active crystal (14) is parallel to the polarisation direction.

Claim 45 (new): Method according to claim 43, wherein the laser-active crystal (14) has at least a first and a second end face (14a, 14b) which have a polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at the first or second end faces (14a, 14b) are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 46 (new): Method according to claim 43, wherein the solid-state laser or solid-state laser amplifier comprises a laser resonator (27) with a multiplicity of mirrors (28, 29, 30), the surfaces of which are provided with polarisation-dependent transmission, and in that the polarisation direction of the pump radiation (2) is oriented so that the reflection losses at these surfaces are minimal and the optical power which enters the laser-active crystal (14) is maximal.

Claim 47 (new): Method according to claim 43, wherein the laser-active crystal (14) consists of Nd:$YV0_4$, Nd:$GdVO_4$, Nd:LSB, Nd:$YA10_3$, Nd:YLF or Nd:BEL.

Claim 48 (new): Method according to claim 43, wherein the laser-active crystal (14) consists of Nd:$YV0_4$ with neodymium doping of more than 0.5% (at.).

Claim 49 (new): Method according to claim 43, wherein the light of the pump radiation (2) from a plurality of

diode lasers (1) is projected onto the laser-active crystal (14), and in that at least one resonator mirror (31, 32 or 33) is provided in order to project the pump radiation (2) onto the laser-active crystal (14).

Claim 50 (new): Method according to claim 43, wherein pump radiation (52) emerging from the second end face (14b) of the laser-active crystal (14) is reflected by a ~~a~~ reflector (52), and re-enters the laser-active crystal (14) as reflected pump radiation (54) through the second end face (14b).

Claim 51 (new): Method according to claim 50, wherein the laser-active crystal (14) has doping and a length which are selected so that less than 70% of the pump radiation (2) can be absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 52 (new): Method according to claim 51, wherein approximately 50 to 60% of the pump radiation (2) is absorbed in the laser-active crystal (14) after entering through the first end face (14a).

Claim 53 (new): Method according to claim 43, wherein an output beam (71) is generated by a laser oscillator (70), and in that the output beam (71) is injected into the laser-active crystal (14) at least via the first or second end face (14a or 14b) and passes through it at least once, while generating a beam (72) with higher output power.

Claim 54 (new): Method according to claim 53, wherein an input mirror (74) for the output beam (71), which injects the output beam (71) into the laser-active crystal (14), is provided between imaging optics (12) for the pump beam (2) and the first end face (14a).